

a sensing element for sensing energy from outside and generating an electrical signal;

a field effect transistor element in which a gate electrode is formed on a rear surface of a chip containing said field effect transistor element; and

a substrate having a first electrode, a second electrode, and a third electrode on the top surface of said substrate;

wherein:

the bottom surface electrode of said resistive element is electrically connected with the first electrode of said substrate;

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the gate electrode of said field effect transistor element is disposed above the top surface electrode of the resistive element, said gate electrode being electrically connected with the top surface electrode of the resistive element by a conductive material;

one of the electrodes of said sensor element is electrically connected with a portion of the top surface electrode of said resistive element;

a source electrode and a drain electrode of said field effect transistor element are respectively electrically connected with the second electrode and the third electrode on said substrate; and

the other electrode of said sensing element is electrically connected with the first electrode on said substrate.

4. (Twice Amended) A method of manufacturing a sensor, said sensor including:

a resistive element having a top surface electrode and a bottom surface electrode;

a sensing element for sensing energy from outside and generating an electrical signal;

a field effect transistor element on which a gate electrode is formed on a rear surface of a chip containing said field effect transistor element; and

a substrate having a first electrode, a second electrode, and a third electrode on the top surface of said substrate;

said method comprising the steps of:

electrically connecting the bottom surface electrode of said resistive element with the first electrode of said substrate;

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electrically connecting the gate electrode of said field effect transistor element to a portion of the top surface electrode of said resistive element by a conductive material, said gate electrode being disposed above the top surface electrode of the resistive element, said gate electrode being separated from the top surface electrode of the resistive element by the conductive material;

electrically connecting one of the electrodes of said sensing element with a portion of the top surface electrode of said resistive element;

electrically connecting a source electrode and a drain electrode of said field effect transistor element with the second electrode and the third electrode on said substrate, respectively; and

electrically connecting the other electrode of said sensing element with the first electrode on said substrate.